

CLAIMS

1. (Currently amended) Device for changing the control times of gas-exchange valves in an internal combustion engine, the device comprising: a rotary piston adjustment device for angular adjustment of a camshaft relative to a crankshaft, with the following features:

the device [[(1)]] is mounted on a drive end of a camshaft supported in a cylinder head of the internal combustion engine and is a hydraulic actuator, which can be controlled as a function of various operating parameters of the internal combustion engine,

the device [[(1)]] includes a drive wheel [[(2)]], in driven connection with the crankshaft of the internal combustion engine, and a vane rotor [[(3)]], locked in rotation with the camshaft of the internal combustion engine,

the drive wheel [[(2)]] has a hollow space, which is formed by a hollow cylindrical peripheral wall [[(4)]] and two lateral walls ~~(5, 6)~~ and in which at least one hydraulic work chamber [[(9)]] is formed by at least two radial limit walls ~~(7, 8)~~,

the vane rotor [[(3)]] has, on a periphery of a rotor hub [[(10)]] thereof, at least one vane [[(11)]], which extends radially into the work chamber [[(9)]] of the drive wheel [[(2)]] and which sub-divides the work chamber into an A pressure chamber [[(12)]] and a B pressure chamber [[(13)]] ,

the pressure chambers ~~(12, 13)~~ are adapted to produce a pivoting motion or to fix the vane rotor [[(3)]] relative to the drive wheel [[(2)]] and thus the camshaft relative to the crankshaft through selective or simultaneous pressurization with a hydraulic pressure medium,

the vane rotor [[(3)]] is mechanically couplable with the drive wheel [[(2)]] in a preferred base position within an adjustment region by a separate locking element

[(14)] when the pressure medium pressure falls below a pressure necessary for adjustment,

the locking element [(14)] is arranged in an axial bore hole [(15)] in the rotor hub [(10)] of the vane rotor [(3)] and can be moved by a spring element [(16)] into a locked position within a receptacle [(19)] in one of the lateral walls (5, 6) of the drive wheel [(2)],

the receptacle [(19)] for receiving the locking element [(14)] is connected hydraulically to at least one pressure chamber (12 or 13) within the device [(1)] via a pressure medium supply groove [(18)] provided in an inner surface of a corresponding one of the lateral walls (5, 6) of the drive wheel [(2)],

upon pressurization of the pressure chamber (12 or 13) with the pressure medium supply groove [(18)], the locking element [(14)] can move hydraulically into an unlocked position within the axial bore hole [(15)] in the rotor hub [(10)] of the vane rotor [(3)],

a local stop [(20)] is arranged within the pressure medium supply groove [(18)] provided in the inner surface of the corresponding lateral wall (5, 6) of the drive wheel [(2)], which interrupts the pressure medium supply to the receptacle [(19)] of the locking element [(14)] when the vane rotor [(3)] has been pivoted from the base position, and

in the side surface of the rotor hub [(10)] of the vane rotor [(3)] opposite the pressure medium supply groove [(18)] there is a bypass [(21)], such that the local stop [(20)] can be bypassed and a pressure medium supply to the receptacle [(19)] of the locking element [(14)] is possible only when the vane rotor [(3)] has been pivoted into the base position.

2. (Currently amended) Device according to claim 1, wherein the receptacle [[(19)]] for the locking element [[(14)]] and the pressure medium supply groove [[(18)]] are arranged in an inner surface of the lateral wall [[(5)]] of the drive wheel [[(2)]] facing away from the camshaft and are produced by stamping, and the local stop [[(20)]] in the pressure medium supply groove [[(18)]] is provided as a material crossbar remaining after the stamping.
3. (Currently amended) Device according to claim 2, wherein the bypass [[(21)]] for the local stop [[(20)]] in the pressure medium supply groove [[(18)]] is arranged in the side surface of the rotor hub [[(10)]] of the vane rotor [[(3)]] facing away from the camshaft and is provided as an elongated hole-like recess, which can be formed in a powder metallurgical production of the rotor hub [[(10)]] of the vane rotor [[(3)]] without further tools.